



NC State University

North Carolina **Solar Center**

# **State Solar Policy**

## **Current Status & Future Outlook**

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N.C. Solar Center  
N.C. State University

**Solar America Cities Annual Meeting**  
**April 15, 2008**



INTERSTATE RENEWABLE ENERGY COUNCIL



# The DSIRE Project

*Database of State Incentives for Renewables & Efficiency*

- Created in 1995
- Funded by U.S. DOE
- Managed by NCSU; affiliated with IREC
- Project scope: RE & EE incentives & regulatory policies

[www.dsireusa.org](http://www.dsireusa.org)

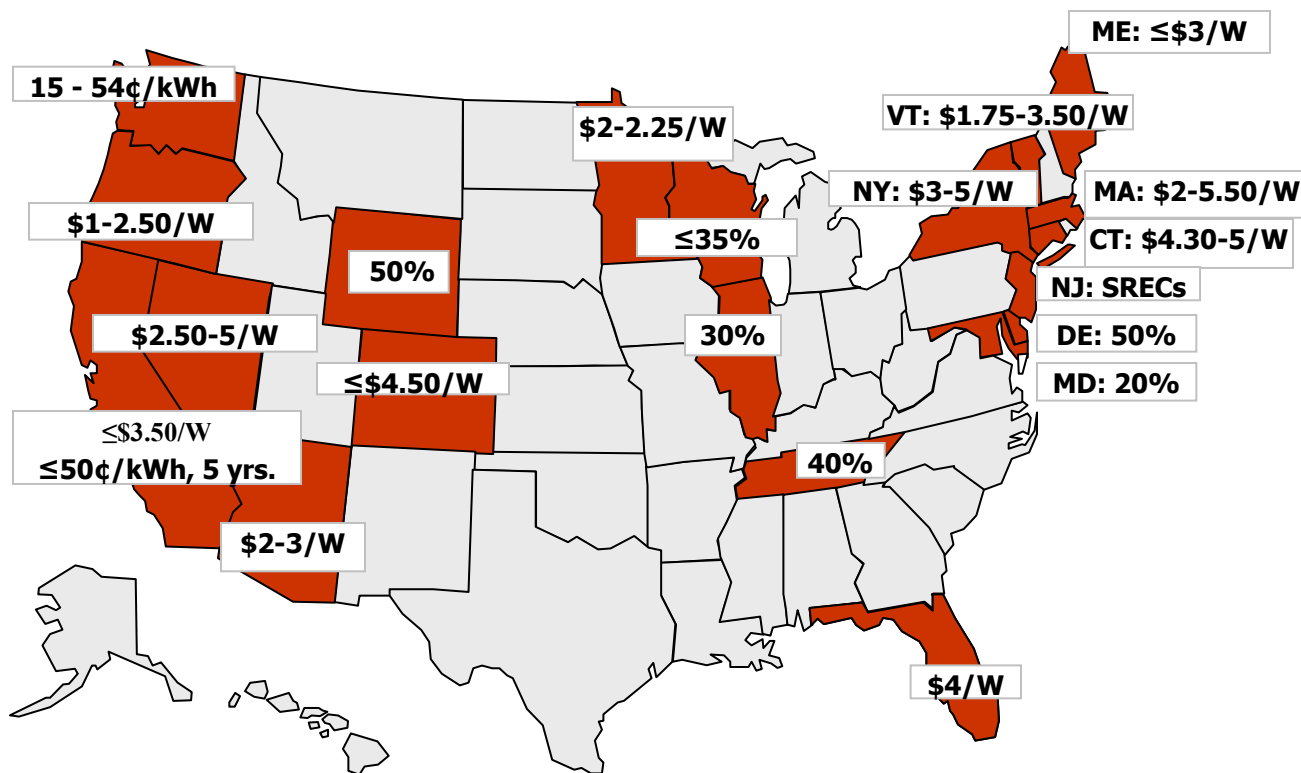


# State Financial Incentives for Solar

- Direct Incentives
  - Rebates (19/23)
  - Grants (15/26)
  - Production Incentives (3/5)
- Tax Credits/Deductions/Exemptions (23/51)
- Low-Interest Loans (23/31)
- Sales Tax Exemptions (18)
- Property Tax Incentives (26)
- Industry Recruitment Incentives (10/13)

*(# of states / # of programs)*

# State Rebates & PBIs for PV

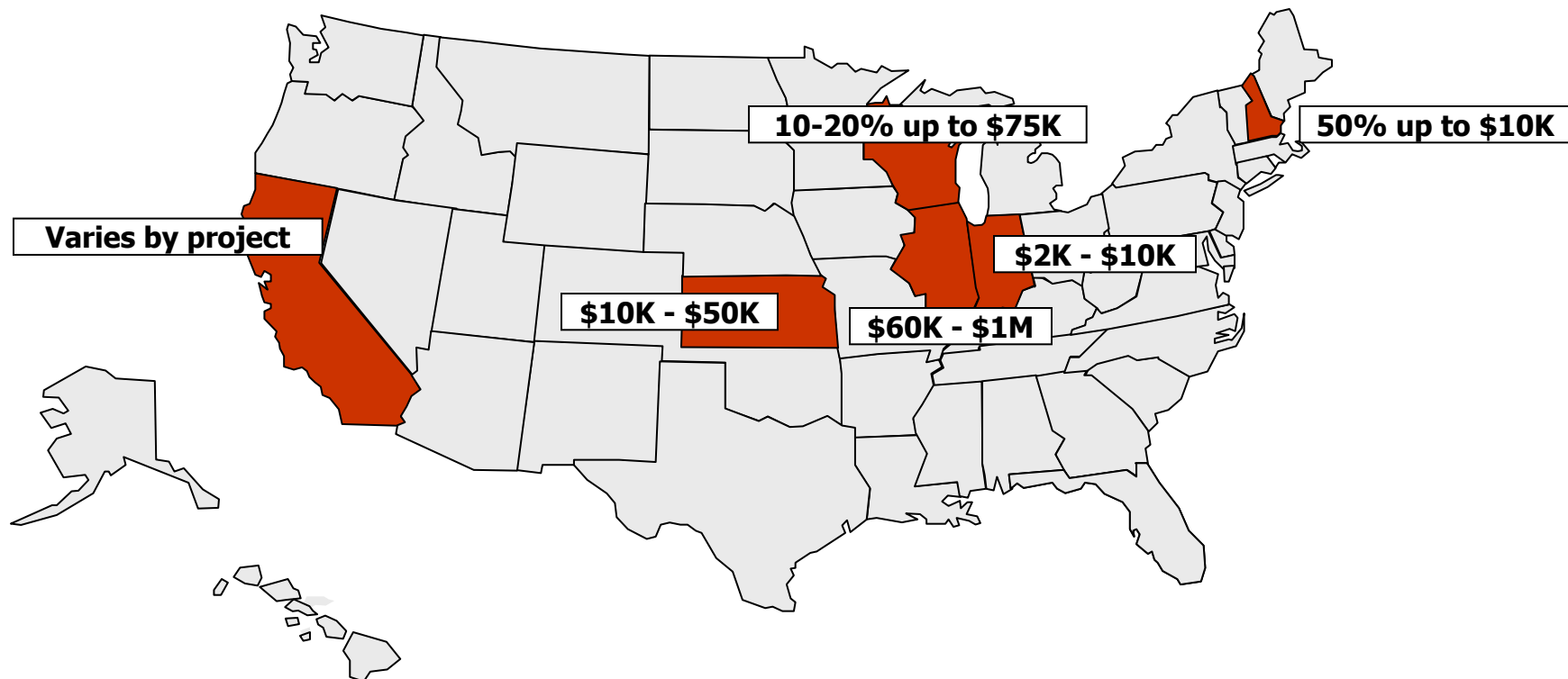


- 25 “state” rebate programs & PBIs  
*(includes RPS-inspired utility programs in AZ, CO, NV)*
- 25 state grant programs  
*(not shown on map)*
- 19 non-state PBIs  
*(not shown on map)*
- 53 utility rebate programs  
*(not shown on map)*



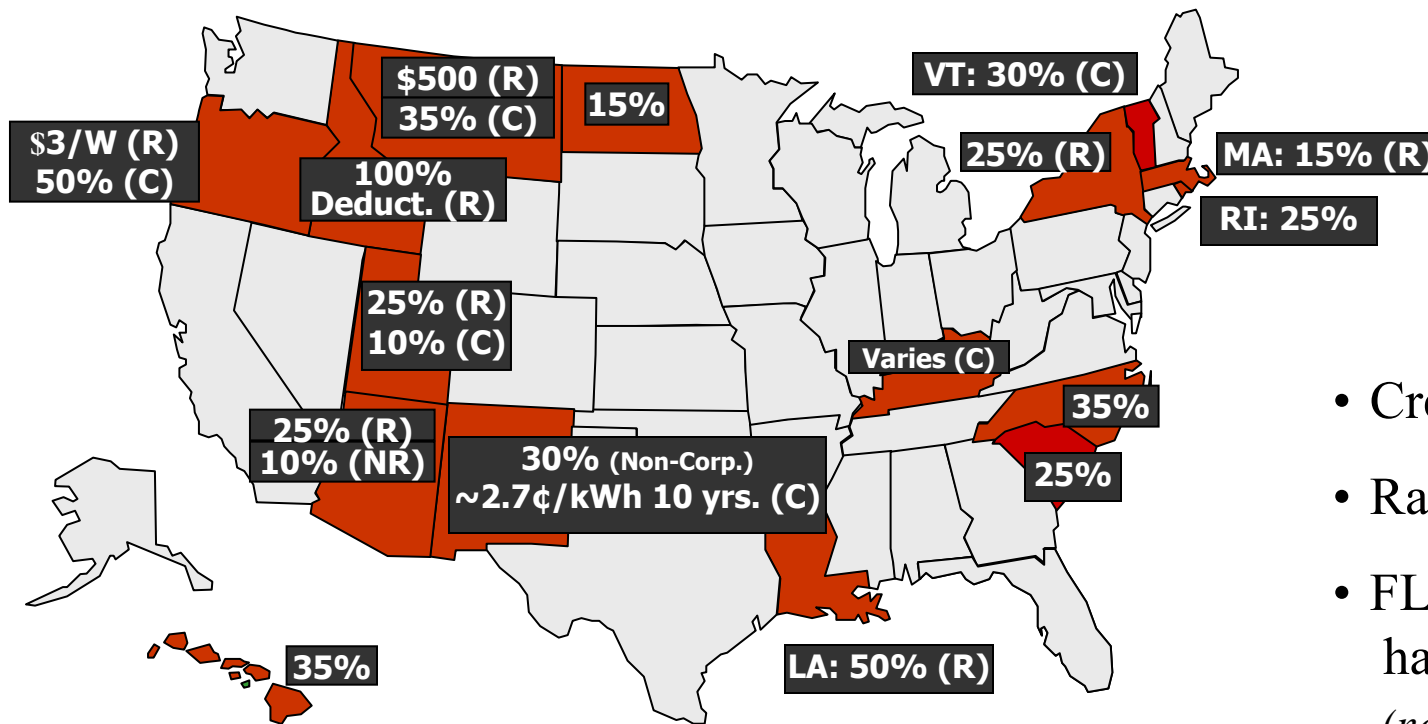
[www.dsireusa.org](http://www.dsireusa.org)

# Direct Incentives for PV, 1997





# State Tax Credits for PV



- Credits in 16 states
- Range: 10% - 50%
- FL, IA, MD, NE, OK have small PTCs  
(not shown on map)

(R) Residential; (C) Commercial; (NR) Non-Residential





## **Financial Incentives: Best Practices**

- Strong, multi-year incentive, declining over time
- Stable funding source
- Easy application process
- Cost-effective quality assurance mechanism
- Qualified installers
- Partnerships with banks, installers, NGOs



## **Financial Incentives: Best Practices**

- Utility cooperation (*esp. interconnection*)
- Public sector eligibility
- Program flexibility
- Track program usage details; share data
- Education & outreach component



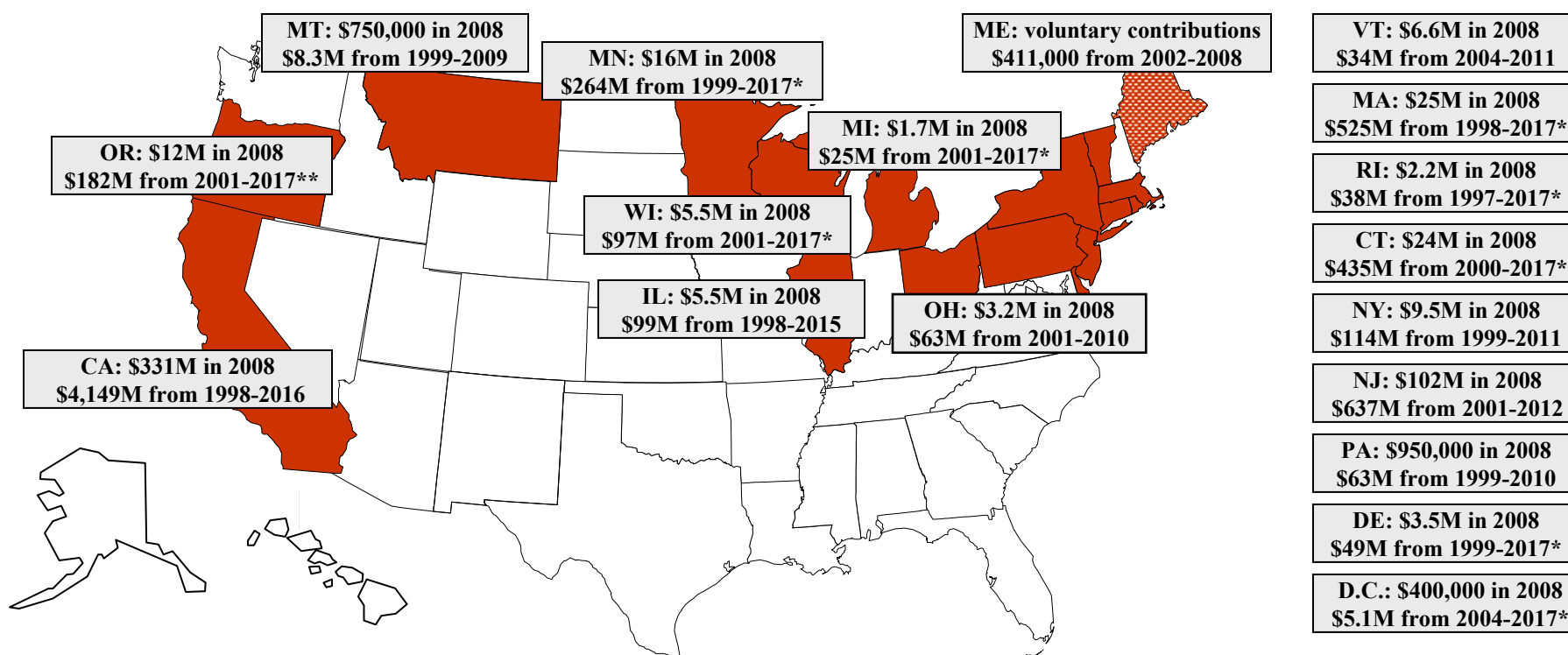


## **State Regulations & Other Policies**

- Public Benefits Funds (16+DC & ME)
- Renewable Portfolio Standards/Goals (25+DC/6)
- Net Metering (38)
- Solar Access Laws (34)
- Green Power Purchasing Policies (10)
- Contractor Licensing (9)



## Public Benefit Funds for Renewables



\* Denotes funds that do not have defined expiration dates and do not require future reauthorization or budgetary approval in order to continue operations. *(These funds are not scheduled to expire in 2017.)*

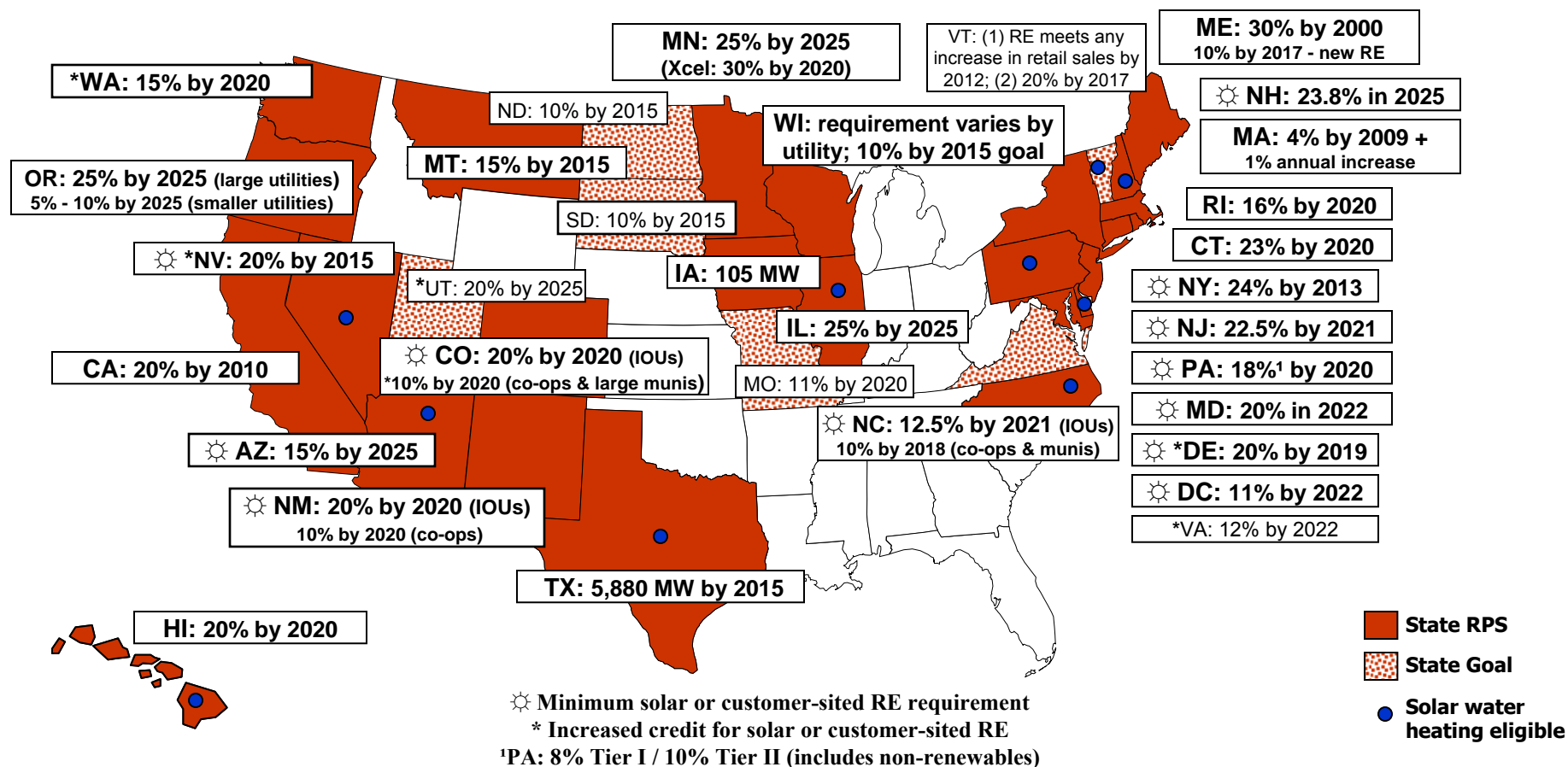
\*\* The Oregon Energy Trust is scheduled to expire in 2025.

**16 state funds + DC  
\$6.8B by 2017 (est.)**

DSIRE: [www.dsireusa.org](http://www.dsireusa.org)

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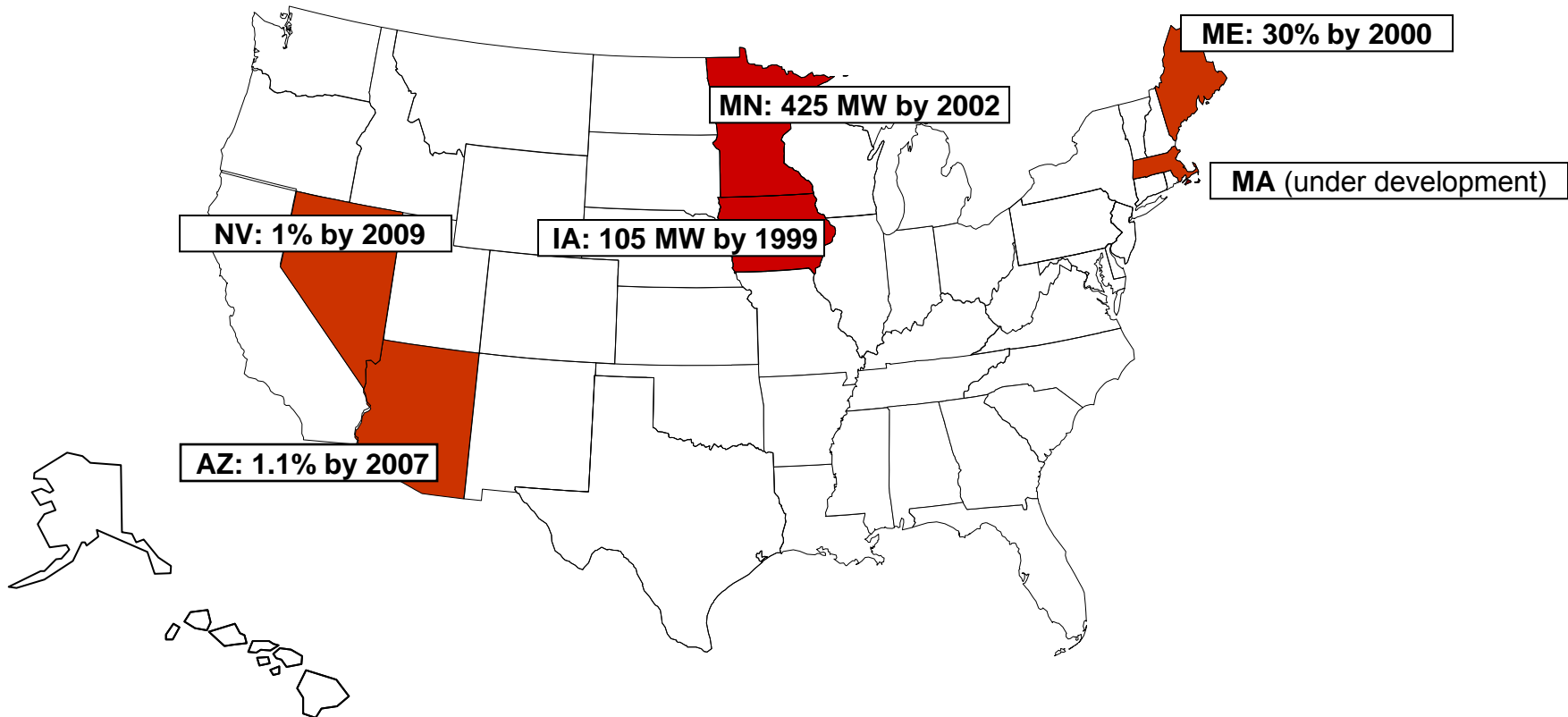
# Renewables Portfolio Standards





[www.dsireusa.org](http://www.dsireusa.org)

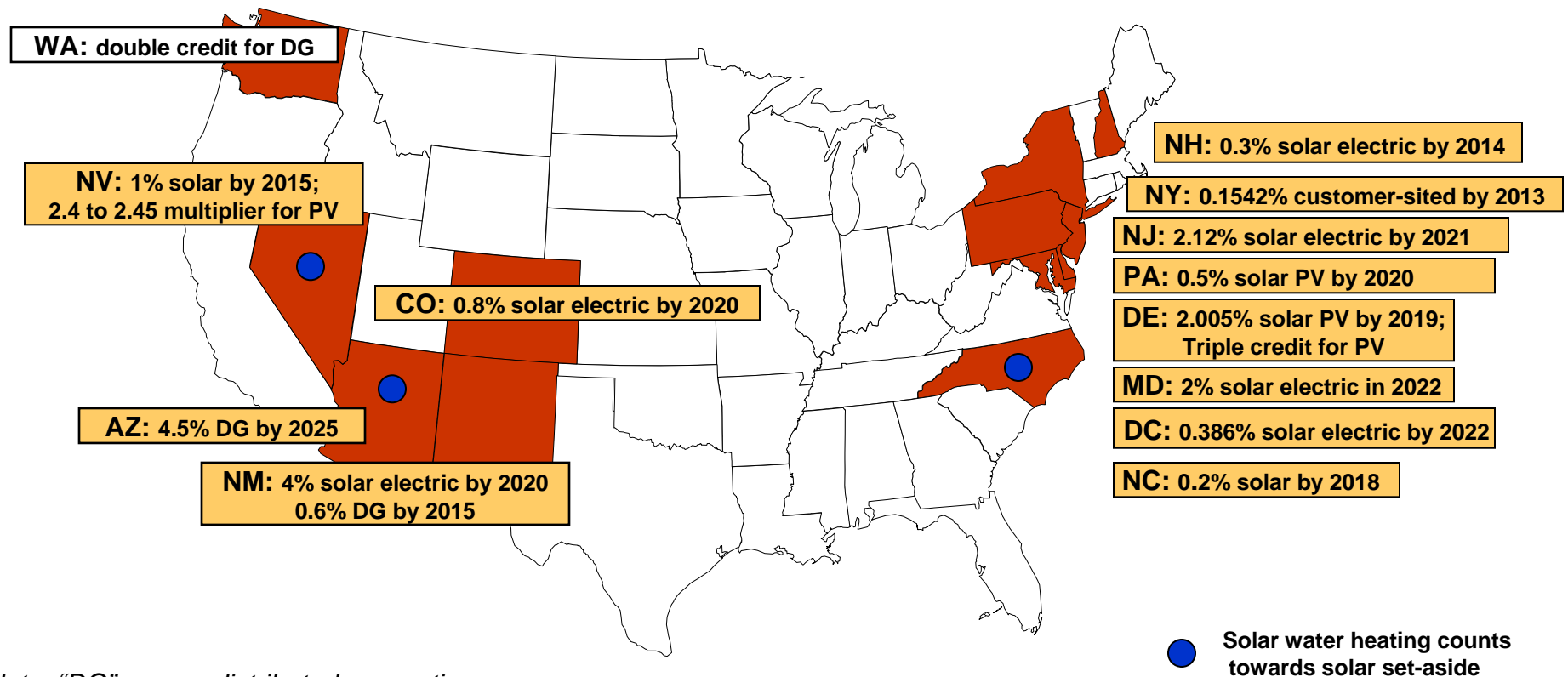
# Renewables Portfolio Standards, 1997





# Solar/DG Provisions in RPS Policies

(~6,000 MW solar capacity)



Note: "DG" means distributed generation

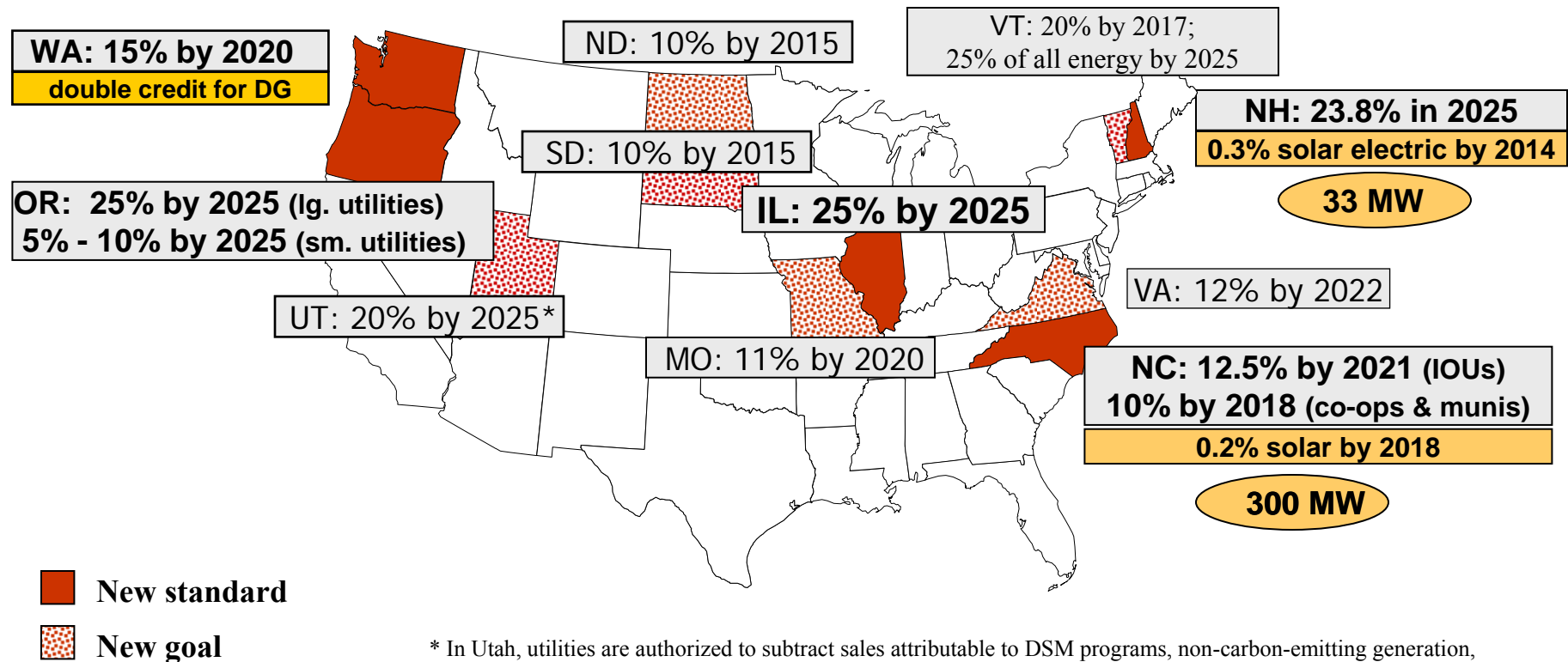


DSIRE: [www.dsireusa.org](http://www.dsireusa.org)

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# New RPS Policies & Goals

(Since fall 2006)

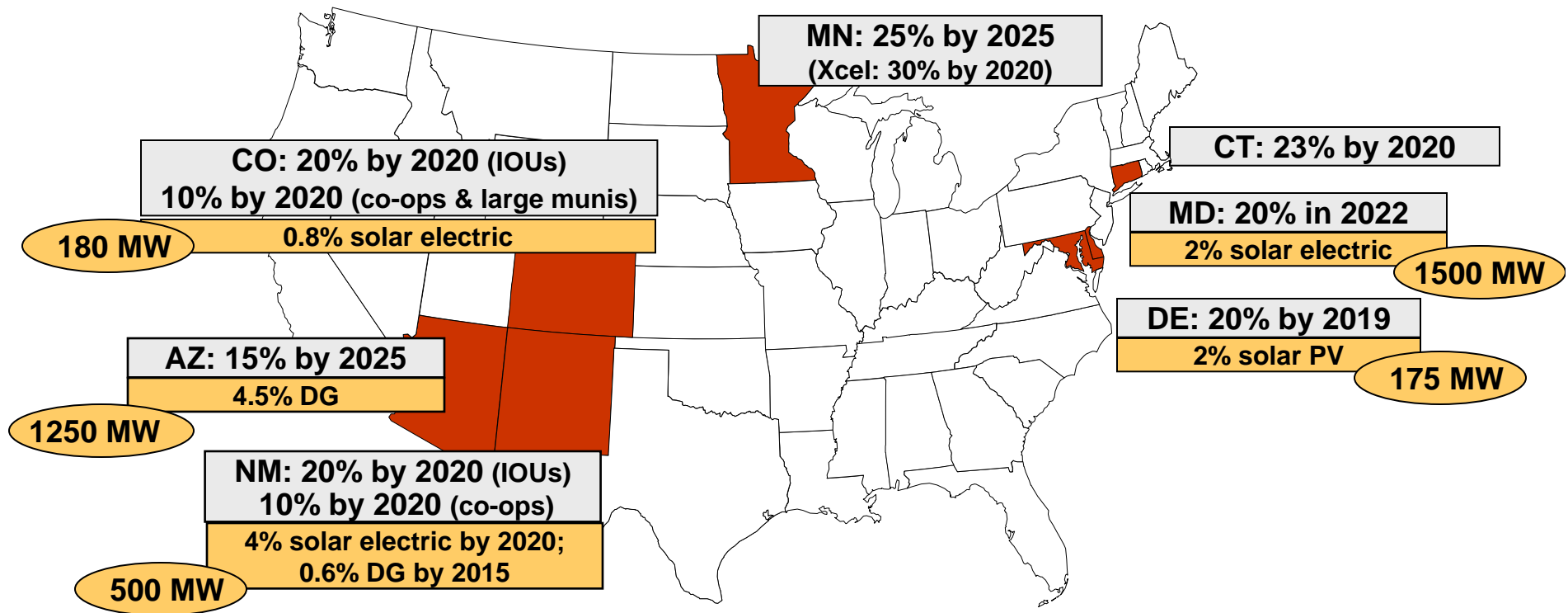


\* In Utah, utilities are authorized to subtract sales attributable to DSM programs, non-carbon-emitting generation, carbon sequestration and certain existing renewables prior to calculating the 20% target.



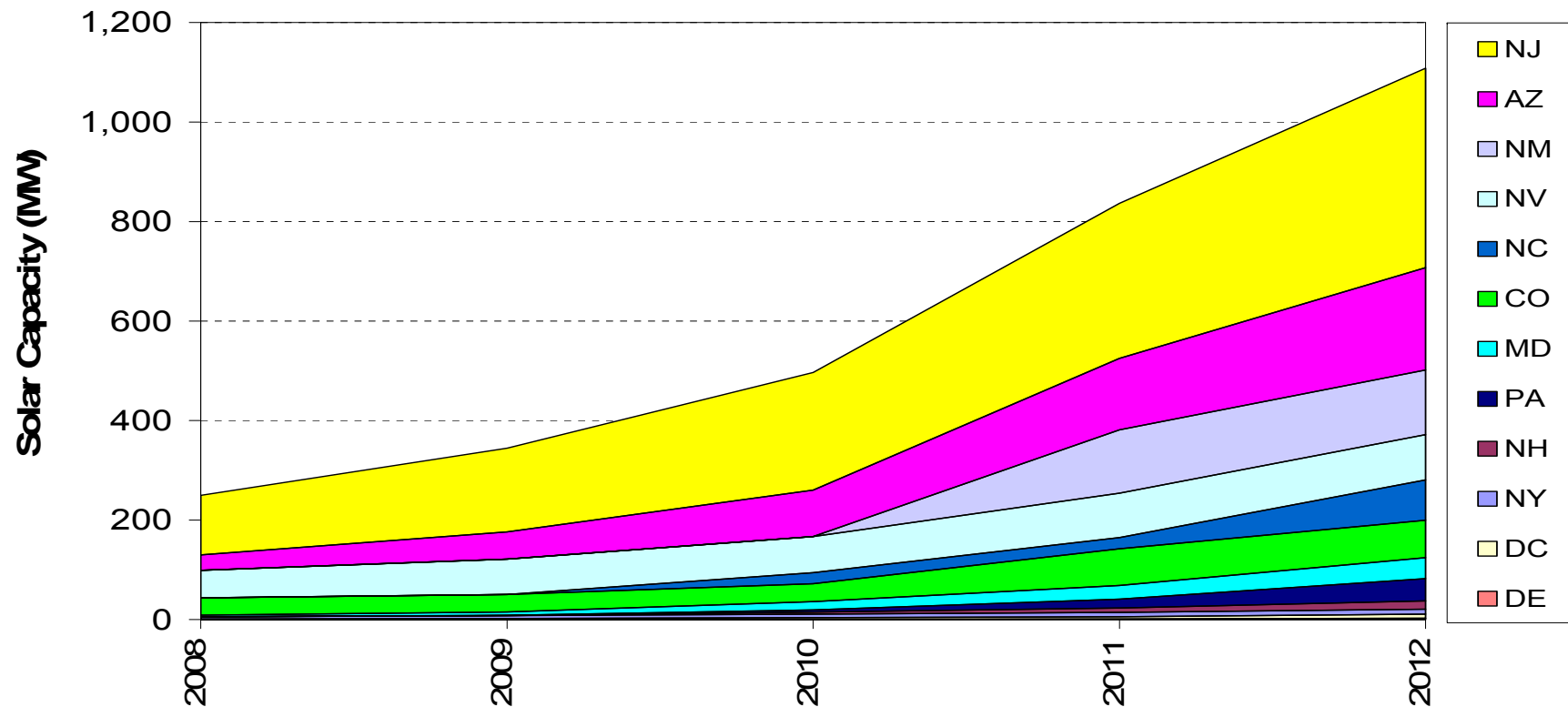


# Increased/Expanded RPS Policies (Since fall 2006)





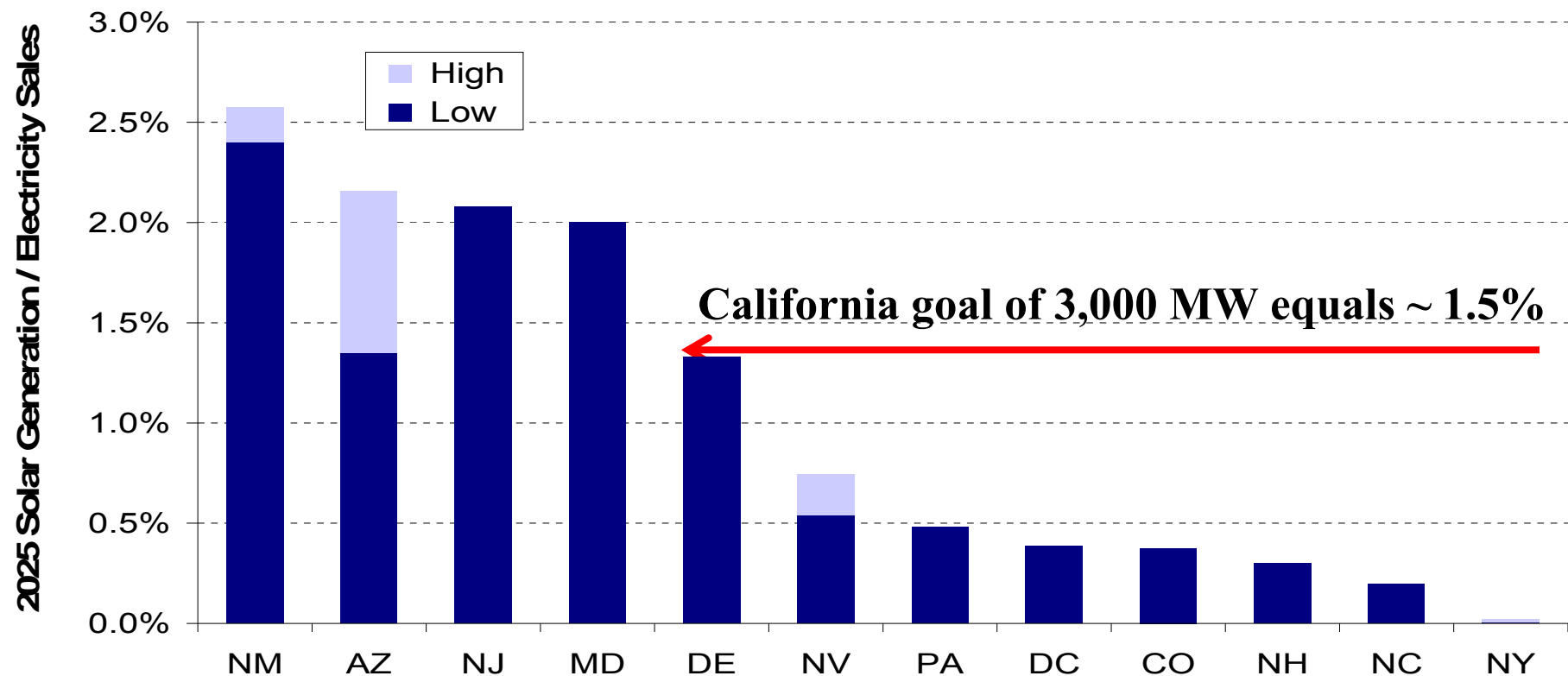
## Largest RPS Markets for Solar in Near-Term: NJ, AZ, NM, NV, NC, CO



Source: LBNL Environmental Energy Technologies Division / Energy Analysis Department



## Most Aggressive RPSs, Required Solar as % of Sales



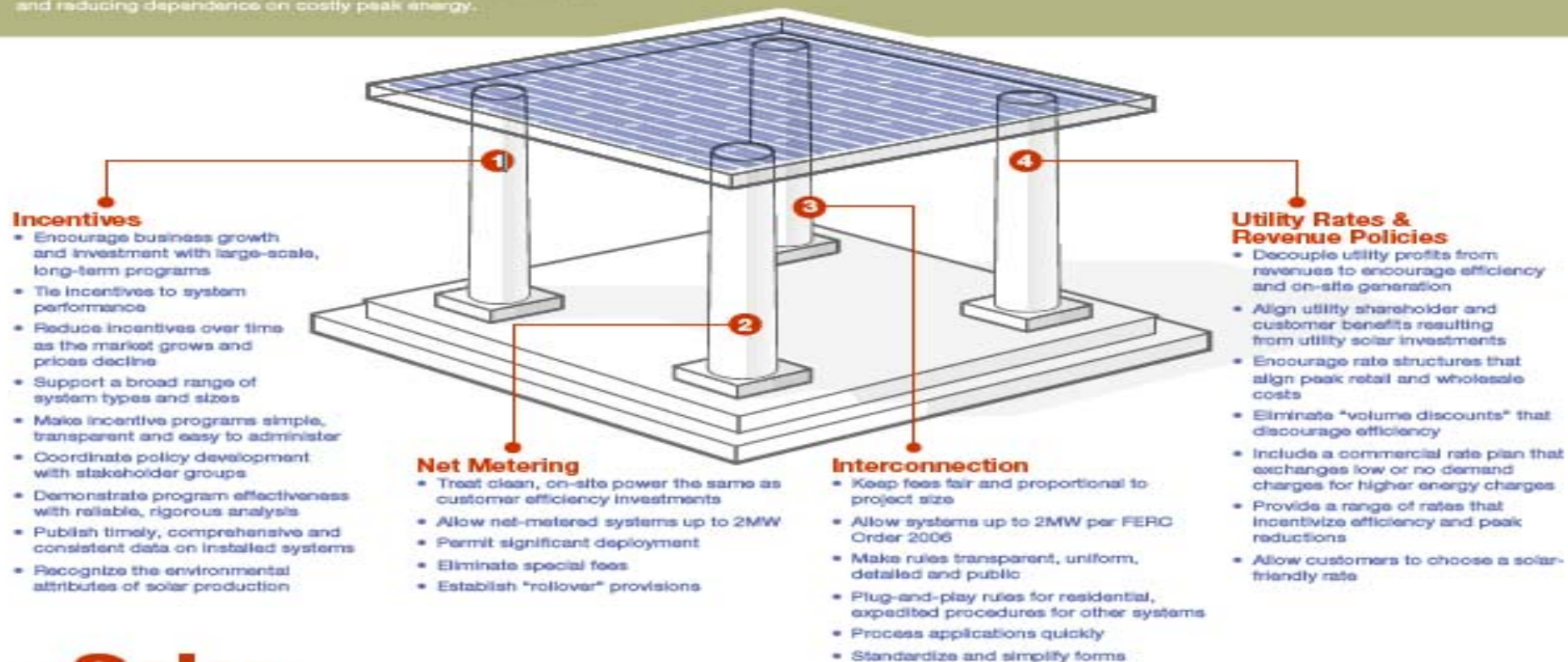
Source: LBNL Environmental Energy Technologies Division / Energy Analysis Department



## The Solar Alliance: [www.solar-alliance.org/model\\_policies](http://www.solar-alliance.org/model_policies)

### THE FOUR PILLARS OF COST-EFFECTIVE SOLAR POLICY

Any state can develop a world-class solar market, strengthening the local economy and environment, increasing grid stability, and reducing dependence on costly peak energy.



The **Solar Alliance**

More details and sample policies can be found at [www.solaralliance.org](http://www.solaralliance.org)



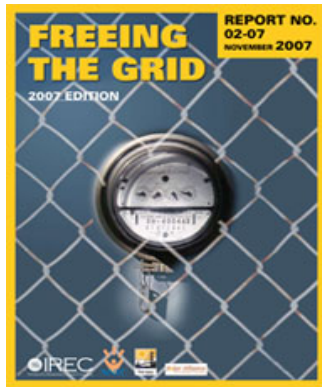
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# Interconnection Standards

- Technical issues include safety, power quality, system impacts. Technical issues largely resolved.
- Policy issues include legal and procedural considerations. State approaches vary widely.



**Best policies adopted by NJ, OR, CO.\***

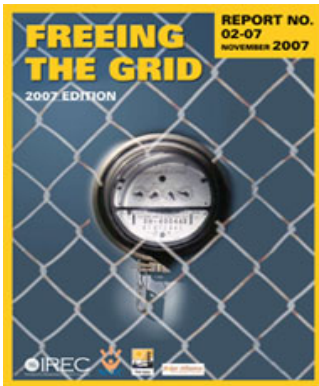
IREC model: [www.irecusa.org/index.php?id=87](http://www.irecusa.org/index.php?id=87)

\* *Freeing the Grid 2007*: [www.newenergychoices.org/uploads/FreeingTheGrid2007\\_report.pdf](http://www.newenergychoices.org/uploads/FreeingTheGrid2007_report.pdf)



# Net Metering

- Allows customers to generate their own electricity and store any excess electricity, usually in the form of a kWh credit, on the grid for later use.
- Available “statewide” in 38 states. State policies vary dramatically.



**Best policies adopted by  
CO, NJ, PA, MD, CA.\***

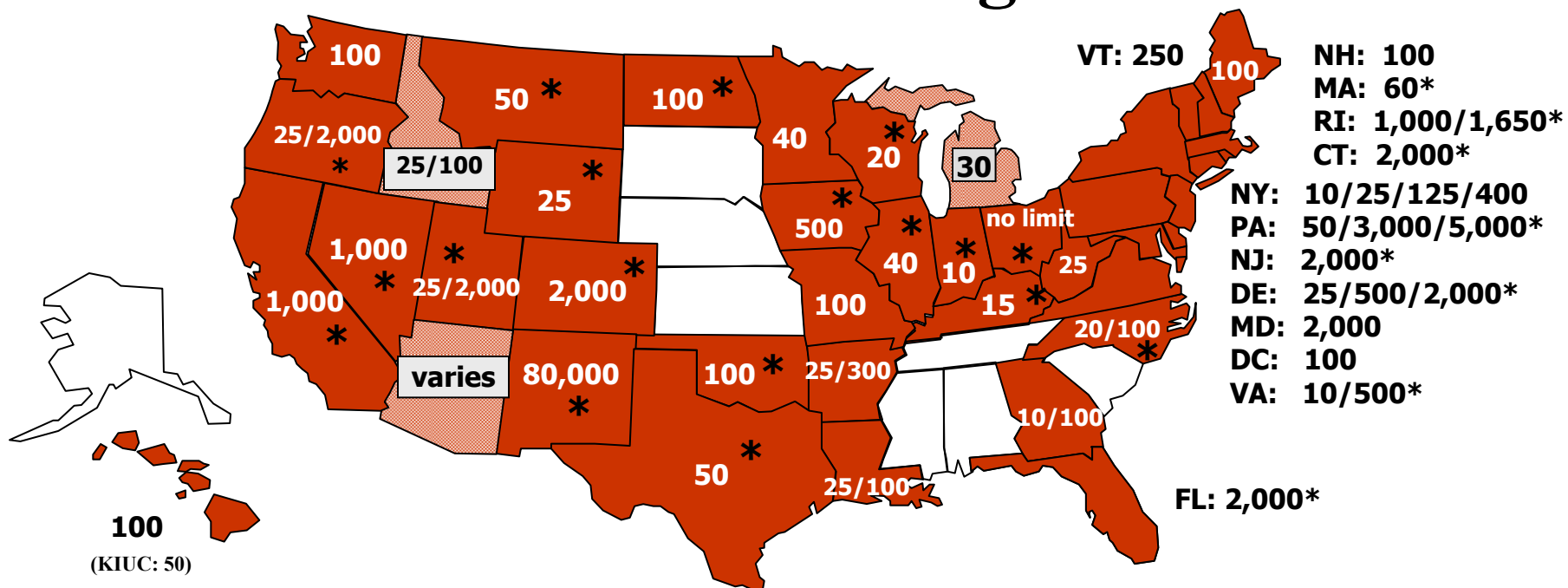
IREC model: [www.irecusa.org/index.php?id=87](http://www.irecusa.org/index.php?id=87)

\* *Freeing the Grid 2007*: [www.newenergychoices.org/uploads/FreeingTheGrid2007\\_report.pdf](http://www.newenergychoices.org/uploads/FreeingTheGrid2007_report.pdf)






**April 2008**

# Net Metering



**Net metering is  
available in  
42 states + D.C.**

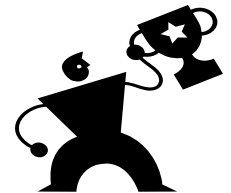
-  **Statewide net metering for all utility types**
-  **\* Statewide net metering for certain utility types only (e.g., investor-owned utilities)**
-  **Net metering offered voluntarily by one or more individual utilities**

***(Note: Numbers indicate individual system size limit in kilowatts. Some states' limits vary by customer type and/or technology)***



# Net Metering: Best Practices

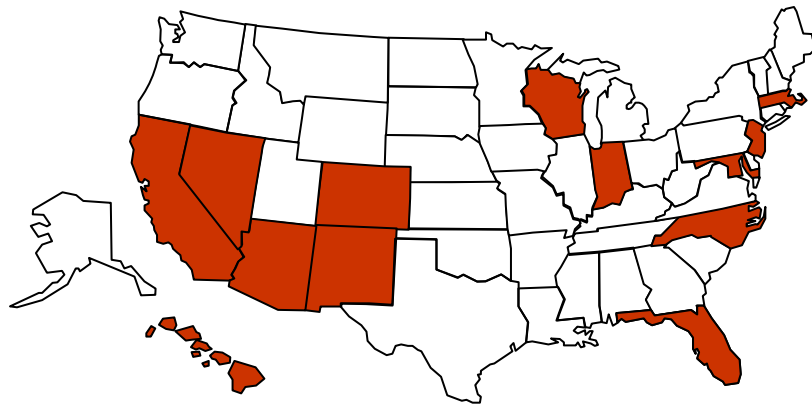
- Maximum system capacity  $\geq 2$  MW
- All renewables eligible (+ CHP)
- All utilities must participate
- All customer classes eligible
- Limit on aggregate capacity  $\geq 5\%$
- Annual reconciliation of NEG, or no expiration
- Interconnection standards
- No application fee
- No special charges, fees or tariff change
- Customer owns RECs





# Solar Access Laws

- Solar easements allow for the rights to existing solar access on the part of one property owner to be secured from another property owner whose property could be developed in such a way as to restrict the solar resource. Transferred with property title.
- 13 states limit or prohibit restrictions that neighborhood covenants and/or local ordinances may impose on the use of solar-energy systems.





# In Conclusion

## State trends:

- ☀ Dominance of RPS
- ☀ Next-generation RE funds
- ☀ Shift toward PBIs
- ☀ Super net metering
- ☀ PPA model (incidental)

## Room for Improvement:

- ☀ Incentives for non-taxpayers
- ☀ Utility rate structures
- ☀ REC-selling opportunities
- ☀ Market coordination



*Wild cards: Federal legislation?  
State budgets? Technology breakthroughs?*





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# DSIRE

**Database of State Incentives for Renewables & Efficiency**

NC Solar Center | IREC | Contacts | About Us | IES

**DSIRE**  
Database of State Incentives for Renewable Energy

The Database of State Incentives for Renewable Energy (DSIRE) is a comprehensive source of information on state, local, utility, and selected federal incentives that promote renewable energy. To access information, use the menu to the left or click on the maps below.

**Navigation Menu:**

- FAQs
- Summary Maps
- Summary Tables
- Search By
- Glossary
- Other Resources
- Library
- Schools Going Solar
- New / Updated Incentives

**Quick Keyword SEARCH**

**Maps:**

- Federal Incentives
- US Territory Incentives

Last Updated: 03/25/04

FAQs | Summary Maps | Summary Tables | Search By | Glossary | Other Resources

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